

ABSTRACT:

Noise reduction is an important feature in consumer television. This is realized by spatial, temporal or spatio-temporal filters. Spatial filters require pixels from within one image, while temporal filters require samples from two or more successive images. The spatio-temporal filter unit (100) according to this invention integrates spatial and implicit motion-compensated temporal noise reduction in one filter. For the motion compensation no motion vectors are required. The spatio-temporal filter unit (100) is provided with a sigma filter (112) comprising one filter kernel (107) designed to operate on the pixels from both a current image and from the output of the spatio-temporal filter unit, being a temporally recursive filtered image. The operation of the spatio-temporal filter unit (100) can be adjusted by varying the thresholds of the sigma filter (112) and the selection of pixels. The adjustments can be controlled by a motion estimator (222), a motion detector (224) and a noise estimator (220).

Fig. 1